

## CLAIMS

1. A sheet material information detecting  
device for detecting information on a sheet material,  
5 comprising:

a sheet material transport means for  
transporting a sheet material along a sheet material  
transport path;

a force applying means for applying an external  
10 force to the sheet material;

an external force detecting means for detecting  
information corresponding to a force existing after  
attenuation of the external force applied to the  
sheet material; and

15 a positioning means for positioning the sheet  
material,

wherein, when the external force is to be  
applied, the positioning means performs positioning  
of the sheet material such that a distance between  
20 the sheet material and the detecting means opposed to  
the sheet material is a predetermined value not less  
than 0.

2. A sheet material information detecting  
device according to Claim 1, further comprising a  
25 sheet material displacing means comprising a  
displacing member protruded into the sheet material  
transport path and adapted to displace the sheet

material on basis of coming into contact with the sheet material.

3. A sheet material information detecting device according to Claim 1, wherein the external force applying means comprises an external force applying member for applying an external force to the sheet material on basis of coming into contact with the sheet material, the sheet material information detecting device further comprising an external force receiving member arranged at a position opposed to the external force applying member and adapted to receive the external force from the external force applying member.

4. A sheet material information detecting device according to Claim 2, wherein the external force applying means comprises an external force applying member for applying an external force to the sheet material on basis of coming into contact with the sheet material, and

wherein the displacing member is arranged at a position opposed to the external force applying member and functions as an external force receiving member adapted to receive the external force from the external force applying member.

5. A sheet material information detecting device according to Claim 3, wherein the external force detecting means supports the external force

receiving member and detects an external force received by the external force receiving member.

6. A sheet material information detecting device according to Claim 3, wherein the external  
5 force detecting means is mounted on a side of the external force applying means and detects an external force through the external force applying means.

7. A sheet material information detecting device according to Claim 1, wherein the sheet  
10 material displacing means determines at least one of a position of the sheet material with respect to the external force detecting means, a position of the sheet material with respect to the external force applying member, and a position of the sheet material  
15 with respect to the external force receiving member.

8. A sheet material information detecting device according to Claim 7, wherein the sheet material displacing member brings the sheet material into contact with the external force receiving member.

9. A sheet material information detecting device according to Claim 2, further comprising an  
20 auxiliary displacing member on a side opposed to the displacing member with interposition of the sheet material therebetween, wherein the auxiliary  
25 displacing member brings the sheet material into contact with the displacing member.

10. A sheet material information detecting

device according to Claim 1, wherein the sheet material displacing member additionally comprises a sheet material sensor for detecting a state and position of the sheet material.

5           11. A sheet material processing apparatus comprising the sheet material information detecting device as claimed in Claim 1, and a sheet material processing portion for performing processing of the sheet material based on a detection result obtained  
10 by the sheet material information detecting device.

          12. A signal output device comprising an external force applying portion for applying an external force to a sheet material and a signal output portion for outputting a signal upon  
15 application of the external force, wherein a displacing member for controlling a position of the sheet material is provided at a position opposed to the external force applying portion with interposition of the sheet material therebetween.

20           13. A method of obtaining information on a sheet material, comprising the steps of:

          supplying a sheet material to a position between a force applying means for applying an external force to the sheet material and a detecting  
25 means for detecting information corresponding to a force existing after attenuation of the external force applied to the sheet material;

positioning the sheet material such that a distance between the sheet material and the detecting means opposed to the sheet material is a predetermined value not less than 0;

5           applying an external force to the positioned sheet material; and

          detecting information on the sheet material.

14. An image forming apparatus comprising:  
a sheet transport means;

10           an information detecting device for detecting information on a sheet material; and

          an image forming means,

          wherein the information detecting device comprises a sheet material displacing means for  
15   displacing the transported sheet material to a proper position, and means for applying an external force to the displaced sheet material.